

REMARKS

The method at issue here involves the making a "linearly scaled" multi-layered coiled hollow fiber bundle configured precisely to promote formation of Dean vortices in a fluid conducted therethrough at a predetermined fluid velocity. The method comprises the coiling of overlapping layers of hollow fiber, the coiling done according to certain predetermined variables, extrapolated from a single layer device according to new algorithms disclosed herein, such that the layers perform substantially equally along a predetermined performance parameter. The accomplishment of "linear scalability" by means of assembling pre-calculated fiber configurations into multiple layers within a coiled fiber bundle -- as opposed to other means -- is unprecedented.

The method had of late been defined in claims 12 to 16, and 18. All stand rejected under 35 U.S.C § 103(a). The claims are reviewed in light of the rejection. Claim 12 is amended. The rest are cancelled. New dependent claims 26 to 28 are added.

Declaration/Oath

In the outstanding Office Action, an objection is raised against applicants' supplemental declaration and claim to the benefit of an earlier-filed parent provisional application.

As to the supplemental declaration, a new one is enclosed. Basis for examiner's objection is felt removed.

As to the claim of benefit, applicants propose removing it from the specification, pending the examiner's acceptance of the new supplemental declaration.

Drawings

Several informalities are identified in the applicants' drawings. Corrected drawings are attached. No new matter is added.

Cancellation of Non-Elected Claims

The examiner notes that "claims 1-11 and 19-25 [are] drawn to an invention nonelected with traverse", then states that a "complete reply to the final rejection must include cancelation of nonelected claims". Applicants wish to comply. Claims 1 to 11 and 19 to 25 are cancelled.

35 U.S.C. § 103(a) - The Belfort Reference

Applicants' claims are rejected under 35 U.S.C. § 103(a) in view of the Belfort reference (U.S. Pat. No. 5,626,758).

At the outset, the examiner states that applicants' claims "essentially differ from Belfort in reciting that Dean vortices are generated in the hollow fiber in both first and second layers and both first and second layers perform substantially equivalently along a predetermined performance parameter." Although other differences can be found, applicants in general do not disagree.

The examiner then argues: "It would have been obvious to a person of ordinary skill in the art to utilize the guidelines in Belfort to calculate variables and manipulate to design multiple coiled hollow fiber bundles that provide a specific performance output to create Dean vortices in both the layers that perform substantially equivalently along a predetermined performance parameter such as flow rate." Applicants disagree. Although Belfort's discoveries can be used by one ordinarily skilled in the art as a foundation for the instant invention, that is not in itself dispositive. Relevant prior art, by definition, will always serve as a foundation for later work. The analysis under section 103 calls for a less conclusory approach.

The gap between the subject matter of the Belfort reference and the subject matter of applicants' claim 12 is not as easily bridged as the examiner's argument presumes. As indicated by the applicant in response to the last Office Action, the algorithms in the Belfort reference were reviewed and their relevance found lacking. Applicants continue to stand by this position. Though they can be used for certain traditional linear-scaling strategies -- such as increasing filtration capacity by adding fiber bundles -- they cannot be used for a scaling approach involving sequentially overlapping layers of coiled fibers.

The examiner dismisses applicants' position regarding the algorithms and "linear scalability". The examiner notes that "algorithms are not claimed". The examiner argues that "applicants do not claim 'linear scalability' that the coiling is conducted with an eye towards the accomplishment of 'substantially equivalent performance' in each coil layer." Applicants disagree.

First, linear scalability is captured. Claim 12 recites that "the coiling in step (a), the coiling in step (b), and the hollow fiber satisfy predetermined variables, such that when fluid flows through said hollow fiber at a predetermined velocity, Dean Vortices are generated in the hollow fiber in both said first and second layers, and both said first and second layers perform substantially equivalently along at least one predetermined performance parameter". This recitation defines "linear scalability". The recitation also limits the claimed methodology to one involving the sequential overlapping of layers of coiled fiber. It excludes methods that (a) do not involve linear scaling, and (b) do not involve overlapping fiber coils. It excludes all of Belfort's embodiments, none of which disclose both linear scaling and overlapping fiber coils.

Second, although the "enabling algorithms" are not recited in the claims, they need not be. Section 112 does not require the claims to be "enabling". That is the province of the specification's "written description". That is where the enabling algorithms are located. That is where they belong.

The mere step of coiling a second layer over a first is not in itself new. But, applicants do not claim merely adding a second layer. Rather, the act of coiling the second layer is performed within the constraint of the enabling algorithms disclosed herein for the first time. This act -- although subject to the variations set forth in applicants' specification -- when performed according to parameters recited expressly in claim 12 will be different in form, function, and result from conventional hollow fiber bundle manufacturing methodologies. Claim 12 -- amended to add even further definition to the method -- is felt patentable.

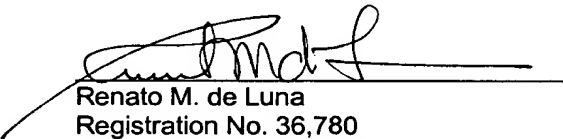
New Claims

New claims 26 to 28, dependant on claim 12, capture more particular modes of practicing the inventive methodology. The new claims do not correlate with the cancelled dependent claims. Fresh consideration of the patentability of the new claims is requested.

Conclusion

The pending claims define subject matter neither described nor suggested by the cited art references. The written description, claims, and drawings meet all applicable statutory requirements. The application is in condition for allowance.

Respectfully submitted,



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Enclosures:
Formal Drawings (11 sheets)
Supplemental Declaration
RCE

Certificate of Mailing/Transmission (37 CFR 1.8)

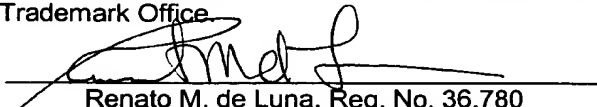
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Date: Monday, February 9, 2004